CE-11 Notes

- Draft FMS Chart “YOHAN FMS Transitions to 18R”
- Scenario Events
- Clearance Information
- Draft Phraseology
- Trajectory Harmonization
- Scheduler Notes

YOHAN FMS Transitions to 18R

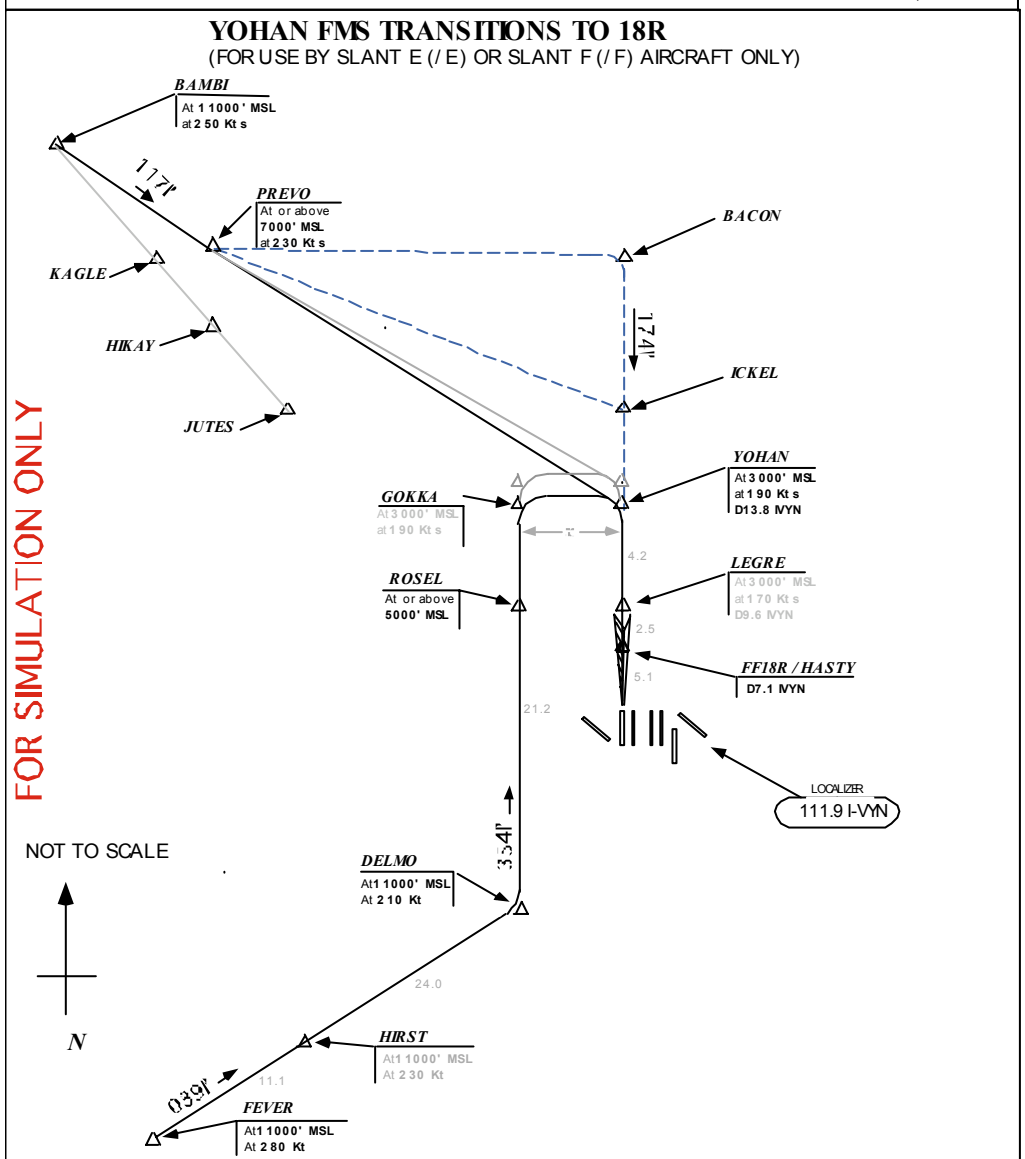
RW 18R will be the primary landing runway for CE-11

Chart design notes:
- The distance from YOHAN to the runway threshold is 11.8 nm.
- The distance from DELMO to GOKKA is 21.2 nm.
- The descent angle from DELMO to GOKKA is 3.5 deg. ... probably too steep for any kind of speed control.
- If the crossing altitude at GOKKA is raised to 5000' (and at YOHAN to 4000') the descent angle from DELMO to GOKKA decreases to 2.7 degrees.
- If the crossing altitude at DELMO is lowered to 8,000' the descent angle from DELMO to GOKKA is ~2.5 degrees (with GOKKA at 3,000').
- If we want to add a trajectory that is 30 seconds longer the turn waypoints will be ~0.79 nm to the north of GOKKA and YOHAN.

Chart - things to do:
- Define routes +30 and +60 seconds
- Define turboprop route from FEVER to GOKKA
- Define route from the south-east

NASA 12 AUG 03
ATIS 123.77

YOHAN FMS TRANSITIONS TO 18R
DALLAS-FT WORTH, TEXAS
DALLAS-FT WORTH, INTL



File: YOHAN-18R FMS.2003.08.12.CV5

Nominal CE-11 Scenario Events

(Aircraft will meet its meter fix crossing restriction)

- The FMS route to the runway is programmed well before top-of-descent.
- TRACON controller accepts handoff when the aircraft is ~10nm from the meter fix.
- Initial TRACON clearance confirms the FMS Transition and provides clearance to descend below 11,000. (Note: The clearance takes effect after the meter fix.)
- An AFR aircraft status changes to IFR when it sequences the meter fix.
- An aircraft that is equipped for spacing is assigned a lead aircraft, a spacing interval, a scheduled time or arrival (STA) at the runway & clearance to “merge then follow”.
- An aircraft that is not equipped for spacing will be cleared with a modified speed profile.

Non-nominal CE-11 Scenario Events

(Aircraft will NOT meet its meter fix crossing restriction)

- The pilot informs the low altitude en route controller that s/he can not meet the crossing restriction at the meter fix.
- The low altitude en route controller after coordination with the TRACON may relax elements of the meter fix crossing restriction.
- Draft guidelines for relaxing meter fix crossing restrictions:

  > cross 1,000’ or 2,000’ high --- does not require coordination with the TRACON

  > cross 3,000’ to 5,000’ high --- requires coordination with the TRACON

  > cross more than 5,000’ high --- requires coordination with the TRACON - will not be approved

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Clearance Information

• The initial TRACON clearance confirms FMS Transition and authorizes descent.

"UAL123, After BAMBE, descend via the YOHAN 18R FMS Transition."

• The "Merge then follow" clearance specifies 1) lead aircraft, 2) spacing interval and the STA or RTA at the runway.

" UAL 123, merge behind then follow AAL345 - 90 second interval - STA at runway is 12:45:25."

Note: distinguish between "maintain spacing" , "reduce spacing" , "increase spacing" , "achieve and then maintain" , ...

Specify CPDLC text strings.

Trajectory Harmonization

- Compare trajectories of the DAG trajectory computations and aircraft behavior.
- Metrics:
    - Altitude profile - tolerance +/- 300’
    - Speed profile - tolerance +/- 10 knots
    - Leg time - tolerance +/- 5 seconds
- Trajectory Computations
    - MACS for ATSP Tools
    - ASTOR FMS for Spacing
    - TCSim
- Aircraft Simulators
    - MACS/PAS
    - PC-Plane
    - ASTOR
    - ACFS
    - TMX
    - 747-400

Scheduler

- The schedule at the runway is based on time to fly to the planned runway in the forecast wind field.
- The scheduler will build in some (TBD) amount of front loading.
- The scheduler will add extra spacing buffer for aircraft unequipped for spacing.
- … to be continued